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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,021	03/05/2001	Lee Robert Dischert	MATP-360US1	1310

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EXAMINER	
WILSON, JACQUELINE B	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/800,021	DISCHERT ET AL.	
	Examiner	Art Unit	
	Jacqueline Wilson	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,9 and 12* is/are rejected.

7)☒ Claim(s) *2,3,5-8,10,11 and 13-16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/23/04 have been fully considered but they are not persuasive.

The applicant argues that the prior art fails to teach or suggest "selecting a first set of N samples of the first color signal and a second set of N samples of the second color signal, where N is an integer greater greater than 2" or "...analyzing the set of samples of the first color signal to determine whether the first set of samples contains M samples representing an edge in the image". The examiner disagrees. White et al teaches utilizing green video signal (first color signal) in which a pulse forming circuit (22) to provide a signal in response to edges (col. 3, lines 22-28), which is interpreted as analyzing the samples to determine edge values. The examiner strongly believes that a set of N samples is inherent in this determination for obtaining edge values. Furthermore, it is deemed inherent that the set of samples consists of a variable at least greater than 2 since edge values consist of a variable less than or equal to the set of color samples obtained. The examiner understands that the prior art is different from the applicant's invention; however, the broadly written claims are able to read on the prior art. Therefore, the rejection of Claims 1, 4, 9, and 12 are maintained.

Claim Rejections - 35 USC § 103

2. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al.'488.

Regarding Claim 1, White et al'488 discloses registration control of live video signals (referred to as using broadcast color television cameras, col. 1, lines 10+) comprising selecting a first set of samples of a first color (green) and a second set of samples (either red or blue) of a second color signal (col. 3, lines 7-11). White et al'488 further discloses a pulse forming circuit (22) which responds to the first set of samples (green) to provide a signal in response to the edges of the sample (col. 3, lines 22-28). This teaches analyzing the samples to determine edge values. Since edge values are pertinent to the system of White et al'488, it is inherent that the edge values consist of a variable less than or equal to the set of color samples obtained which would therefore mean that the set of samples consists of a variable at least greater than 2. White et al'488 further teaches comparing the first set of samples to the second set of samples to determine displacement (referred to as misregistration) between the two sets of samples (col. 3, lines 37-53). However, White et al'488 does not specifically disclose storing the first and second sets of samples if the first set of samples is determined to contain the M samples representing the edge. Since White et al'488 teaches making the comparison between the edges, it would have been obvious that storage would occur. In order to align the color signals for generating overlapping color components precisely (col. 2, lines 60-62), one having ordinary skill would recognize the use of a storage means. Also, since the green signal is referred to as a reference signal in which either the red or the blue signals are to be compared, it would have been obvious

to store the two sets of samples when it is determined that the green signal has an edge value for the purpose of maintaining the values for further processing. Therefore, it would have been obvious to one having ordinary skill in the art to store the first and second sets of samples if the first set of samples is determined to contain the M samples representing the edge.

White et al'488 discloses that the sets of color components must be synchronized in time (col. 2, lines 60-63 through col. 3, line 10). This teaches analyzing the sets of N samples to determine if they are at proper relative levels to obtain valid information on misaligned transition in the image. If the signals are not synchronized, correcting for misalignment would not be performed properly.

Claim 9 is analyzed and discussed with respect to Claim 1. (See rejection of Claim 1 above.)

3. **Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al'488 in further view of Digital Image Processing article.**

Regarding Claim 4, White et al'488 teaches that an edge is detected in the first set of samples, but fails to specifically disclose how the edges are detected. However, there are many known methods of determining the edges of image signals, especially calculating values and comparing them with a threshold value. Threshold values are a simple matter of engineering choice created by the manufacturer to give certain values to be compared. The article in Digital Image Processing teaches that M, which represents an edge, may be equal to 2 (see page 200) in which these values are

calculated and compared to a value. Once it is determined that the samples exceed a predetermined threshold, an edge is formed as shown on page 201. This is an advantageous method for determining edges for the purpose of accuracy. Therefore, it would have been obvious to one having ordinary skill in the art to calculate difference values between successive ones of the samples in the first set of samples, compare the values to an edge threshold value in which if the values are greater than the threshold value, an edge is determined.

Claim 12 is analyzed and discussed with respect to Claim 4. (See rejection of Claim 4 above.)

Allowable Subject Matter

4. Claims 2-3, 5-8, 10-11, 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding Claims 2 and 10, the prior art neither teaches nor fairly suggests selecting a first set of N samples and a second set of N samples, analyzing the set of samples to determine whether the first set of samples contains M samples representing an edge, storing the first and second sets if the first set of samples contains the M samples, comparing the stored first and second sets to determine a displacement between the M samples in the first set of samples with M corresponding samples in the second set of samples, calculating a measure of color balance between the first set of samples and the second set of samples and discarding the first and second sets of

samples if the measure of color balance has a value which is not within a predetermined range.

Regarding Claims 5 and 13, the prior art neither teaches nor fairly suggests selecting a first set of N samples and a second set of N samples, analyzing the set of samples to determine whether the first set of samples contains M samples representing an edge, storing the first and second sets if the first set of samples contains the M samples, comparing the stored first and second sets to determine a displacement between the M samples in the first set of samples with M corresponding samples in the second set of samples, performing a cross correlation between the stored first and second sets of samples to identify a coarse displacement between respective edges, selecting the M samples from the stored first set of samples and M corresponding samples from the second set of samples, wherein each of the samples from the second set is displaced by the identified displacement from the respective sample in the first set, interpolating S samples between successive ones of the M samples of each of the first and second sets of samples, where S is an integer, performing a cross correlation between the respective M original and interpolated samples of the first and second sets of samples to identify a fine displacement between the first and second sets of samples which is less than one intersample distance of the original samples from a central sample of the M samples of the first set of samples, and combining the coarse displacement and the fine displacement to obtain the measure of the registration errors and chromatic aberration errors in the video signals.

Regarding Claims 6 and 14, the prior art neither teaches nor fairly suggests selecting a first set of N samples and a second set of N samples, analyzing the set of samples to determine whether the first set of samples contains M samples representing an edge, storing the first and second sets if the first set of samples contains the M samples, comparing the stored first and second sets to determine a displacement between the M samples in the first set of samples with M corresponding samples in the second set of samples, performing a cross correlation between the stored first set of samples and the stored second set of samples to identify a coarse displacement between respective edges in the first and second sets of samples to a nearest intersample distance and storing a correlation value at each displacement considered in the cross correlation, selecting at least three of the stored correlation values including the correlation value corresponding to the identified displacement; fitting a parabolic curve to the selected correlation values, determining a maximum point of the parabolic curve as a fine displacement, and combining the coarse displacement and the fine displacement to obtain the measure of the registration errors and chromatic aberration errors in the video signals.

Regarding Claims 7 and 15, the prior art neither teaches nor fairly suggests selecting a first set of N samples and a second set of N samples, analyzing the set of samples to determine whether the first set of samples contains M samples representing an edge, storing the first and second sets if the first set of samples contains the M samples, comparing the stored first and second sets to determine a displacement between the M samples in the first set of samples with M corresponding samples in the

second set of samples, generating respective measures of sum of absolute difference between the M samples of the first stored set of samples and M samples of the second stored set of samples for respectively different displacements between the first stored set of samples and the second stored set of samples, identifying a coarse displacement as the sum of absolute difference measures which is less than or equal to any other one of the sum of absolute difference measures, selecting the M samples from the stored first set of samples and M corresponding samples from the stored second set of samples, wherein each of the samples from the second set is displaced by the coarse displacement from the respective sample in the first set, interpolating S samples between successive ones of the M samples of each of the first and second sets of samples, where S is an integer, performing a cross correlation between the respective M original and S interpolated samples of the first and second sets of samples to identify a fine displacement between the first and second sets of samples which is less than one intersample distance of the original samples from a central sample of the M samples of the first set of samples, and combining the coarse displacement and the fine displacement to obtain the measure of the registration errors and chromatic aberration errors in the video signals.

Regarding Claims 8 and 16, the prior art neither teaches nor fairly suggests selecting a first set of N samples and a second set of N samples, analyzing the set of samples to determine whether the first set of samples contains M samples representing an edge, storing the first and second sets if the first set of samples contains the M samples, comparing the stored first and second sets to determine a displacement

between the M samples in the first set of samples with M corresponding samples in the second set of samples, generating respective measures of sum of absolute difference between the M samples of the first stored set of samples and M samples of the second stored set of samples for respectively different displacements between the first stored set of samples and the second stored set of samples, identifying a coarse displacement as the sum of absolute difference measures which is less than or equal to any other one of the sum of absolute difference measures, selecting at least three of the measures of sum of absolute difference including the measure corresponding to the coarse displacement, fitting a parabolic curve to the selected measures, determining a minimum point of the parabolic curve as a fractional intersample distance to be combined with the identified displacement to produce the measured displacement value.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacqueline Wilson whose telephone number is (571) 272-7322. The examiner can normally be reached on 8:30am-5:00pm (alternate Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JW
06/14/05

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